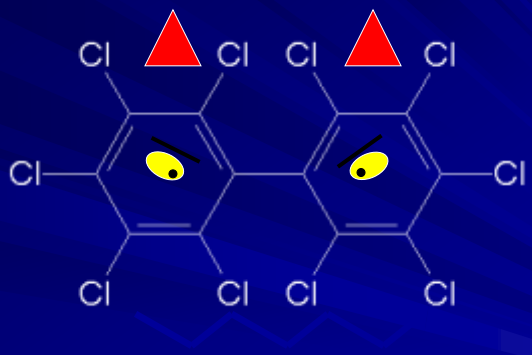
# NEWMOA – PCBs and TSCA





- Kim Tisa, PCB Coordinator
- US EPA Region 1


# The Demise Begins

- In 1976, over concerns about the toxicity and persistence in the environment of PCBs, Congress enacted Section 6(e) of the Toxic Substances Control Act (TSCA)
- In 1979, PCBs were banned for all uses except “totally enclosed uses”, such as transformers, capacitors, vacuum pumps and hydraulic fluids
- In 1998, PCB Disposal Amendments

## Where does that leave us today?

- The TSCA PCB regulations (40 CFR Part 761) place prohibitions on the use (manufacture), processing, and distribution in commerce and specify storage and disposal requirements for PCBs and PCB items
- PCB regulations may govern owners, operators, and/or persons conducting cleanup of PCB-contaminated property where the PCB contamination exceeds allowable concentrations under the regulations
- TSCA authority is not delegated to the states; therefore both TSCA and state regulations will apply

## PROJECT GENERAL STEPS
## Site Characterization, Cleanup and Disposal

- Investigate
- Delineate
- Determine cleanup criteria and develop cleanup plan
- Perform cleanup and verify
- Dispose of waste according to regulations
- Document

## PROJECT CONSIDERATIONS

- Do I need to look for PCBs
- If I find PCBs, is my site regulated under TSCA
- What are my cleanup options

## PCBs in Industrial Applications

- Transformers
- Capacitors
- Hydraulic fluids
- Oil-based paints
- Fluorescent light ballasts
- Lubricating & cutting oils
- Floor finishes
- Fire retardants
- Thermal Insulation materials (foam, felt)
- Caulking & grout
- PVC coatings for electrical wire & components
- Carbonless copy paper
- Inks and dyes
- Adhesives/mastic

# In fluorescent light ballasts


# SMALL CAPACITORS

**PCB Small Capacitor of the type that can be found in clock systems. Trade Name is indicative of PCB content as well as the absence of the statement "No PCBs"**

**Small Capacitor which does not contain PCBs of the type that can be found in clock systems. Marking "No PCBs" indicates that it was manufactured without PCBs.**

# TRANSFORMERS

- Transformer Spill and Weepage

# Photos

- Pad-mount Transformer with Spill

# DEFINITIONS § 761.3

- PCB remediation waste
- PCB bulk product waste
- Excluded PCB product

## *PCB Remediation Waste § 761.3*

- Material is considered a TSCA *PCB Remediation waste* if:
  - Disposed prior to April 18, 1978 and is currently at ≥ 50 ppm
  - Original PCB source ≥ 500 ppm beginning on April 18, 1978 and currently any concentration (≥ 1 ppm)
  - Original PCB source ≥ 50 ppm beginning on July 2, 1979 and currently any concentration (≥ 1 ppm)
  - Any concentration if from an unauthorized source
  - Burden of Proof and Presumption of no unreasonable risk

# *PCB Bulk Product Waste*

Definition at § 761.3

" Waste derived from manufactured products containing PCBs in a non-liquid state, at any concentration where the concentration at the time of designation for disposal was ≥ 50 ppm PCBs"

# Issues

- The use of PCBs in non-liquid manufactured building products at >/= 50 ppm is prohibited under TSCA.
- Manufactured products containing PCBs have been found in many buildings and structures
- Caulk typically contains PCBs at very high levels - %
- The PCBs may migrate to a limited extent to surrounding materials (air, soil, masonry).
- Typical renovation procedures can increase exposures to workers and building residents, including children.

# PCBs in Building Materials

- Considerations
  - PCB Bulk Product Waste § 761.62
    - Caulk, paint, mastic, laminates, adhesives
  - PCB Remediation Waste § 761.61
    - Concrete, masonry, brick, window frames, exterior soils, furniture
  - Demolition or Renovation
    - *PCB bulk product waste* and Reinterpretation Impact

# *PCB Bulk Product Waste* Disposal

*Bulk Product Waste* (761.62)

*examples: caulk, applied dried paints, varnishes, other similar coatings or sealants, Galbestos, building substrates*

- Performance-based disposal
- Disposal in Solid Waste Landfill
- Risk-based Disposal Approval
- Daily Cover/Roadbed

# *Source Removal*
# *PCB Bulk Product Waste**

- Caulk removal
  - Strip out
- Paint removal
  - Abrasives
  - Chemicals
  - Hydroblast
  - Dry Ice

* 40 CFR 761.62

# Adjacent Surfaces and Surrounds
## *PCB Remediation Waste**

- Grind/cut out areas of visual "source material" classified as *PCB bulk product waste*
- Apply 761.61 options, as appropriate

* 40 CFR 761.61

# *PCB Bulk Product Waste* Region 1 Sites

- Universities, Schools and Daycare Centers
- Pools
- Federal Government Buildings
- State/Local Govt. Buildings
- Water Systems
- Commercial Buildings
- BFs
- Nuclear Power Plants

## Cleanup of *PCB Remediation Waste* – § 761.61

- Three options for Site cleanup
  - Self-implementing Approach
  - Performance-Based Approach
  - Risk-based Approach

# Self-implementing Approach (SIP) § 761.61(a)

- Most appropriate for small-moderate sized sites (< 1-acre)
- Excludes certain sites (surface water/sediments)
- Notification/Certification requirements with USEPA, states, and local environmental agencies
  - 30-day default timeframe not applicable unless SIP requirements are followed in their entirety
- Prescriptive procedures for sampling and cleanup
  - Requires compliance with all sampling and analytical procedures
  - *In Situ* ("as found") sampling with no compositing for characterization
  - Subpart N or Subpart O

# PCB Cleanup Levels

(bulk *PCB Remediation Waste/Porous Surfaces)*

- High Occupancy (> 6.7 hrs/week avg.)
  - ≤ 1 ppm
  - ≤ 10 ppm w/ cap*
- Low Occupancy (<6.7 hrs/week avg.)
  - ≤ 25 ppm
  - ≤ 50 ppm with fence and sign
  - < 100 ppm w/ cap*

* Cap: minimum 10" compacted soil, or minimum 6" asphalt or concrete

## PCB Cleanup Levels
(*Non-Porous Surfaces*)

- High Occupancy (> 16.8 hrs/week avg.)
  - ≤ 10 ug/100 cm²
- Low Occupancy (<16.8 hrs/week avg.)
  - < 100 ug/100 cm²

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## Verification Sampling after Removal

§ 761.61(a)(6) - detailed and prescriptive methods for:

- Sample extraction and analyses
- Number of samples, depths, and locations
- Reporting
- Subpart O (*porous*) or Subpart P (*non-porous*)

** Compositing provided adequate delineation

## Cleanup Verification of *PCB Remediation Waste*

- Field screening methods may be used in a dynamic sampling approach for initial verification
- Final verification sampling uses a 5' x 5' sampling grid over remediated area (minimum 3 samples) and definitive laboratory analysis methods but may use Subpart Q
- Cleanup continues until established cleanup levels are reached

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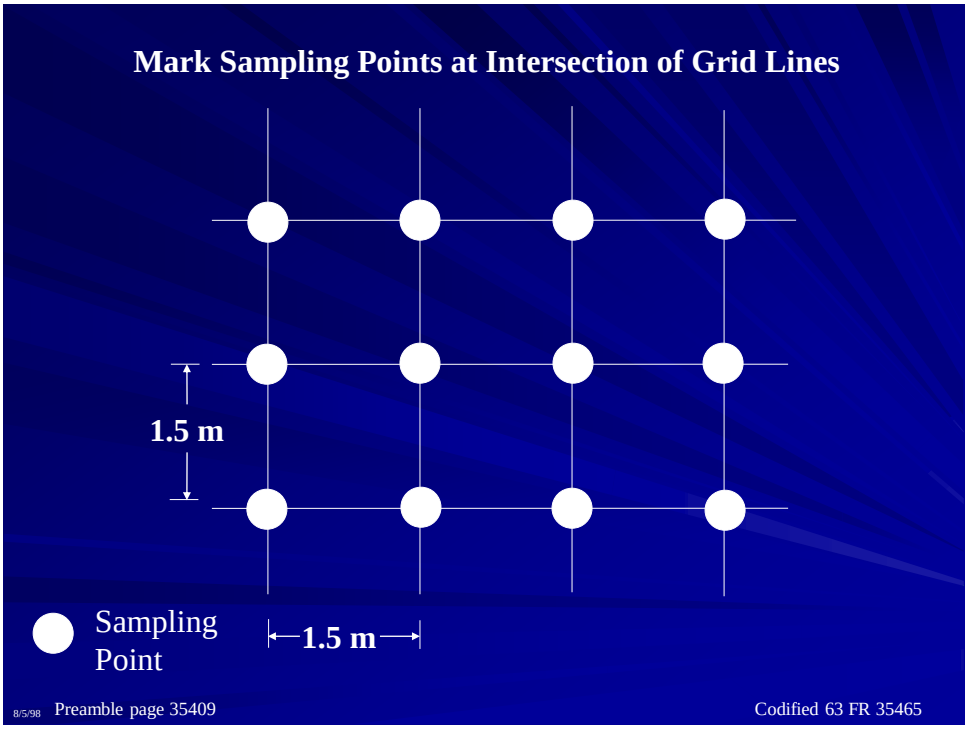
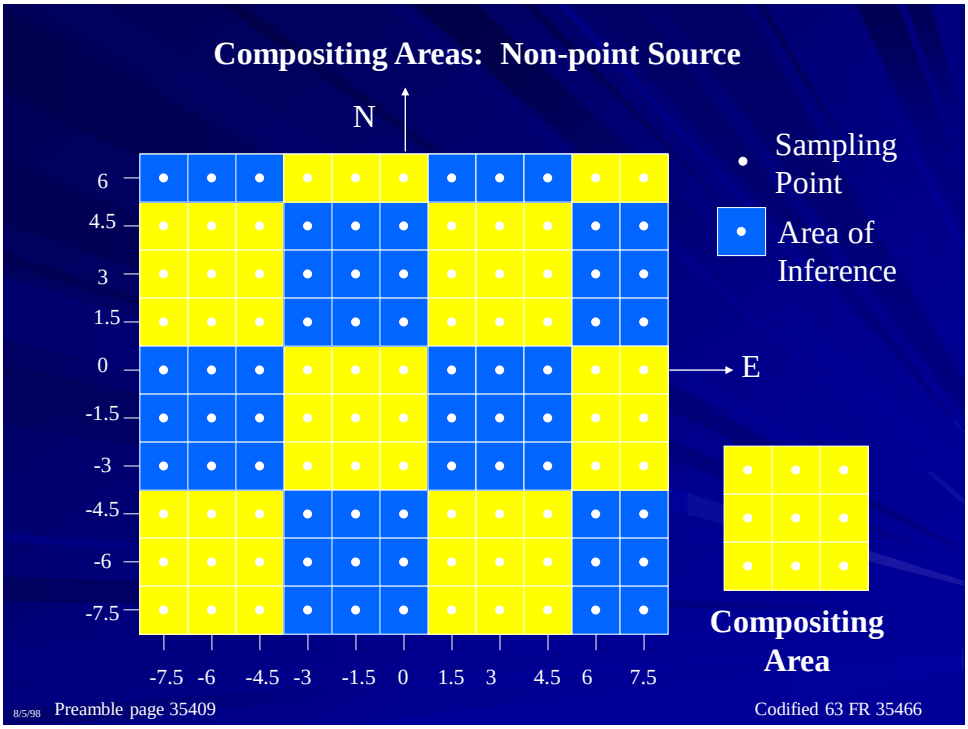
## Subpart O - Composite Sampling

- Allowed provided adequate characterization
- Consider whether point-source or non-point source
- 9-sample max per composite


Mark Sampling Points at Intersection of Grid Lines
1.5 m
Sampling Point
1.5 m
8/5/98 Preamble page 35409
Codified 63 FR 35465


Compositing Areas: Non-point Source
N
E
6
4.5
3
1.5
0
-1.5
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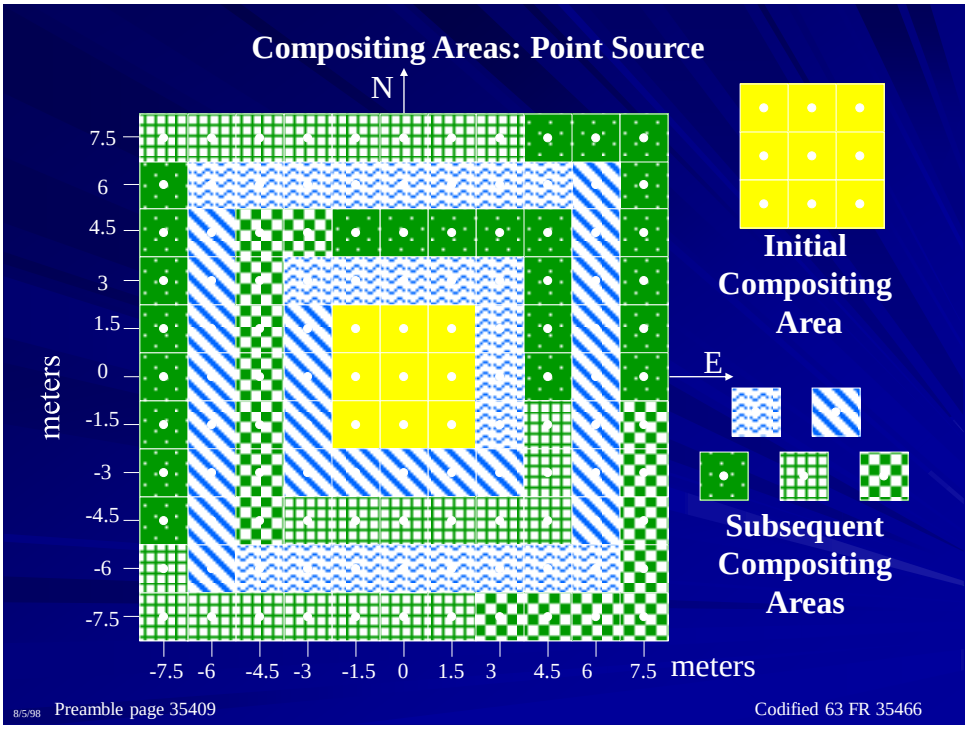
Sampling Point
Area of Inference
Compositing Area
8/5/98 Preamble page 35409
Codified 63 FR 35466




## Disposal of *PCB Remediation Waste*

- Liquids § 761.60(a)
- ≥ 50 ppm (dewatered waste)
  - Existing TSCA Facilities
  - RCRA §3004 or §3006 hazardous waste landfill
- < 50 ppm (dewatered waste)
  - Existing TSCA Facilities
  - RCRA §3004 or §3006 hazardous waste landfill
  - State approved solid waste landfill

## Risk Based Option 40 CFR § 761.61(c)

- Deviation from decontamination, storage, and disposal requirements under 761.61(a)
- Recommended for complex or large sites and all media types
- Requires EPA approval
- Public notification process may be required
- Risk Assessment: state vs. federal
- Possible Long-Term O&M / Financial Assurance

## Performance Based Option 40 CFR § 761.61(b)

- Notification not required to perform removal work
- Cleanup to less than 1 mg/kg total PCBs - Subpart O
- Dispose of all waste at TSCA-approved facility
- Document cleanup and keep records on file
- Submit § 761.61(a) Notification to EPA

## Pole-Top Transformer Spill

November 2006

- Bank closed 4 days
- 4 dogs decontaminated
- ~ $150,000 cleanup cost

## Management in Place

- Not acceptable for *PCB bulk product waste* (§ 761.62)
- May be acceptable for surrounding materials (§ 761.61)
- *Possible* short-term interim measure
  - Consultation with EPA
  - Sampling/O&M may be required

# *Excluded PCB Products*

- Must meet all criteria under § 761.3
  - ✓ concentration
  - ✓ sold/distributed in commerce prior to 1984
  - ✓ no dilution
- May be left in place without further restrictions/requirements
- State requirements may require removal


CAULK
BETWEEN WINDOW
& INTERIOR SILL
164 PPM


CAULK
AROUND
DOORS
21,000 PPM


ASPHALTIC FELT & MASTIC
UNDER WOOD GYM FLOOR
9.6 - 10.9 PPM


## Project Impacts

# Project Consideration

## Which PCB option is best for my site?

- Schedule
- Site size and End Use
- Contamination type and extent
- Special removal requirements
- Verification sampling
- Public involvement

# Other Project Considerations

- Excavation/Decon set-up
- Storage limitations (lined roll-offs, containment areas, time restrictions)
- Transportation requirements (vehicles, manifests, PCB activity notification)
- Field Screening and Laboratory TAT
- Waste management / disposal
- Other federal/state/local permits/certs

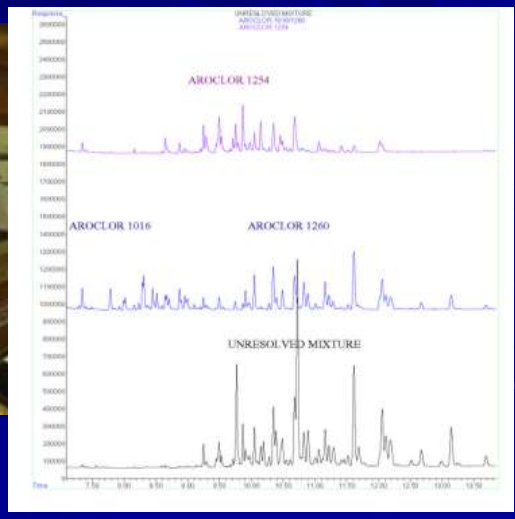
# PCB Project Dos and Don'ts

- DO:
  - Know your Site
  - Delineate nature/extent
  - Appropriate and Representative Sampling
  - Appropriate analytical data
  - Contractor Plans consistent with remediation
  - Consider waste management/storage
  - Count on the unexpected

# PCB Project Dos and Don'ts

- DON'T:
  - Forget your Lab
  - Mishandle Waste
  - Re-contaminate cleaned areas
  - Improperly Decontaminate
  - Collect Samples while still conducting cleaning
  - Time delays
  - $$$

# ANALYTICAL CONSIDERATIONS AND PITFALLS

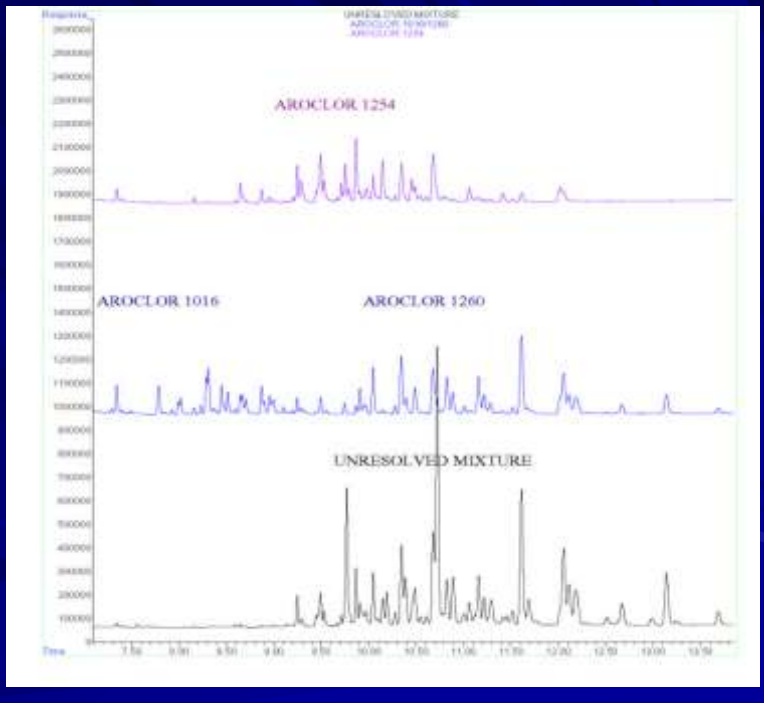



## Lack of Quality Assurance/ Quality Control

- A properly planned analytical program with adequate QA/QC samples is critical
- QA/QC Program should include:
  - Field and Lab Duplicates
  - Method blanks
  - Temperature blanks
  - Field Blanks and MS/MSDs
  - Laboratory PEs

# LAB COMMUNICATION ISSUES

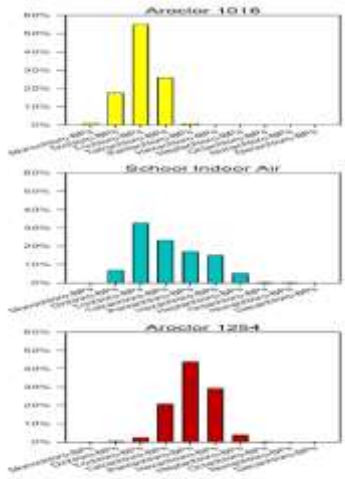
- Discuss Project Requirements
- Methods
  - Soxhlet extraction (3540) preferred
  - Extraction by sonication (3550) not preferred
    - Inefficient
    - Not applicable to all matrices
    - Not allowed under many state QA programs
  - Analytical: 8082 (8270, 680, 1668)
  - Alternative methods require correlation study
    - Subpart
  - Reporting limits



# AROCHLOR VS HOMOLOGUE?

Estabrook School
(Lexington MA)
Investigation

- EH&E (2011) Report
- Site-specific risk assessment
- Homologue pattern (at right) used to justify alternate Aroclor 1016 RfD

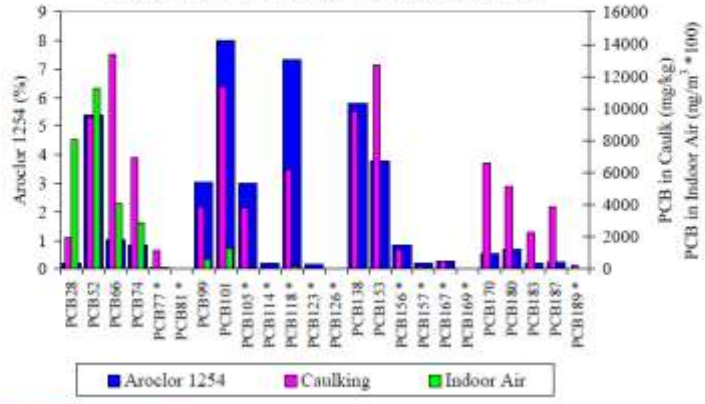





## PCBs in Denmark Homes

Danish Health Protection Agency, 2012

- 83 PCB-contaminated apartments
- 27 congeners in caulking, indoor air, & serum
- Plotted against Aroclor 1254 composition



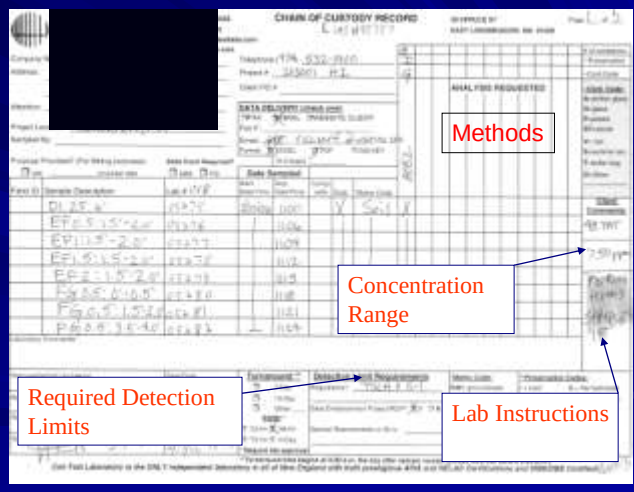
# Incorrect/Incomplete COC Info.

1) Analytical and extraction requirements

2) Expected concentration range

3) Required reporting limits

4) Special Instructions




# Activities to Date

- September 2009 caulk guidance - fact sheets, Q & A's, Schools Information Kit
- *Steps to Safe Renovation and Abatement of Buildings that have PCB-Containing Caulk*
- Public health levels for PCBs in indoor air for schools – September 2009
- Ballast Guidance - December 2010
- Disaster Debris Guidance - 2011
- ORD: PCB mitigation and exposures assessment in buildings - 2012
- *PCB bulk product waste* reinterpretation - 2012

http://www.epa.gov/epawaste/hazard/tsd/pcbs

# PROPOSED / NEW CHANGES

- April 2010 ANPRM PCB Uses
- September 2012 - Revisions to Manifesting Regulations (direct final)
- Upcoming – Ship Sampling Guidance

# Contacts and PCB Info

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- Caulk Hotline: 888-835-5372
- *http://www.epa.gov/epawaste/hazard/tsd/pcbs*
- *http://www.epa.gov/region1/cleanup/pcbs/index.htm*

# Questions